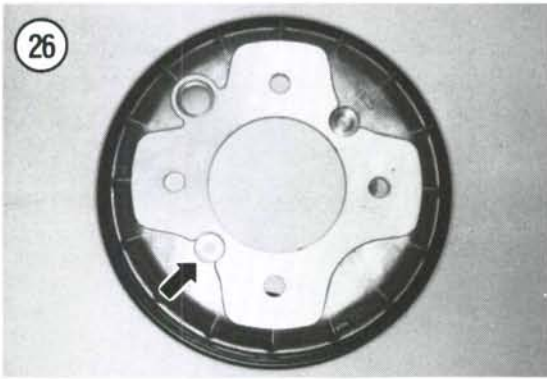
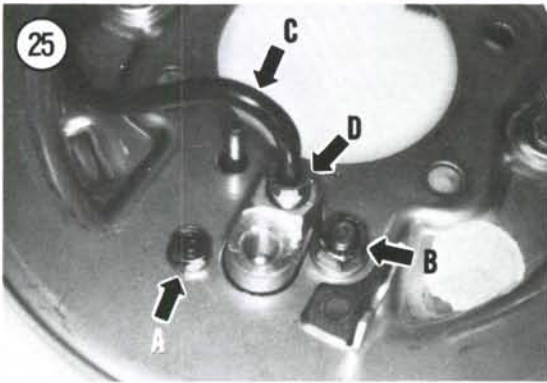


Brake Drum Inspection

1. Inspect the drum (**Figure 26**) for any damage or fractures. Replace if necessary.
2. Check the contact surface of the drum (**Figure 27**) for scoring. If there are grooves deep enough to snag a fingernail, the drum should be reground and new shoes fitted. This type of wear can be avoided to a great extent if the brakes are disassembled and thoroughly cleaned after riding the vehicle in water, mud or deep sand.



NOTE

If oil or grease is on the drum surface, clean it off with a clean rag soaked in lacquer thinner—do not use any solvent that may leave an oil residue.

3. Use a Vernier caliper and check the inside diameter of the drum for out-of-round or excessive wear. Turn the drum if it will still be within the service limit dimension. Replace the drum if it is worn to the service limit listed in **Table 1** or greater.
4. If the drum is turned, the linings will have to be replaced and the new linings arced to the new drum contour.
5. Measure the brake linings with a Vernier caliper. They should be replaced if worn to the service limit (distance from the metal backing plate) or less as listed in **Table 1**.

REAR DRUM BRAKE

Brake Shoe Replacement

Refer to **Figure 28** for this procedure.

NOTE

Honda has determined that there may be a "loud squeal" problem when the rear brake is applied on 1988 and 1989 2-wheel drive models and 1988 4-wheel drive models. To solve this problem, the anchor pin radius was changed on the new set of revised brake shoes. This problem was covered in the Honda Service Department Wrench publication of August 1989. If you are having this problem and the vehicle is still covered by any applicable warranty, take the vehicle to the Honda dealer and have the problem corrected.

1. Place the vehicle on level ground and set the parking brake.
2. Remove the right-hand rear wheel as described in Chapter Eleven.
3. Remove the cotter pin and castellated axle nut (**Figure 29**) securing the right-hand wheel hub to the rear axle. Discard the cotter pin.
4. Remove the washer (A, **Figure 30**) right-hand rear wheel hub (B, **Figure 30**).

WARNING

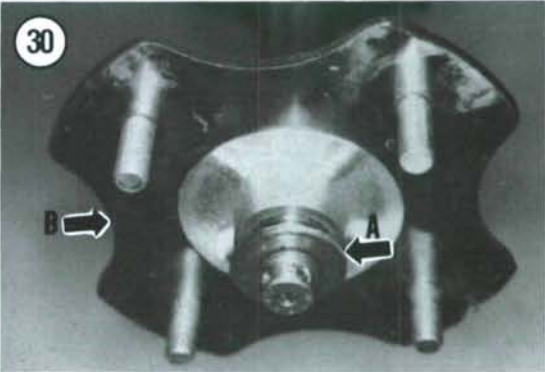
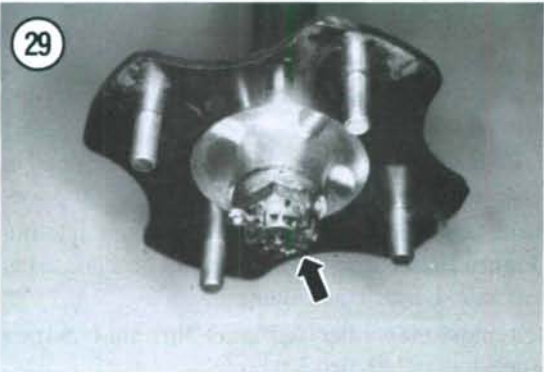
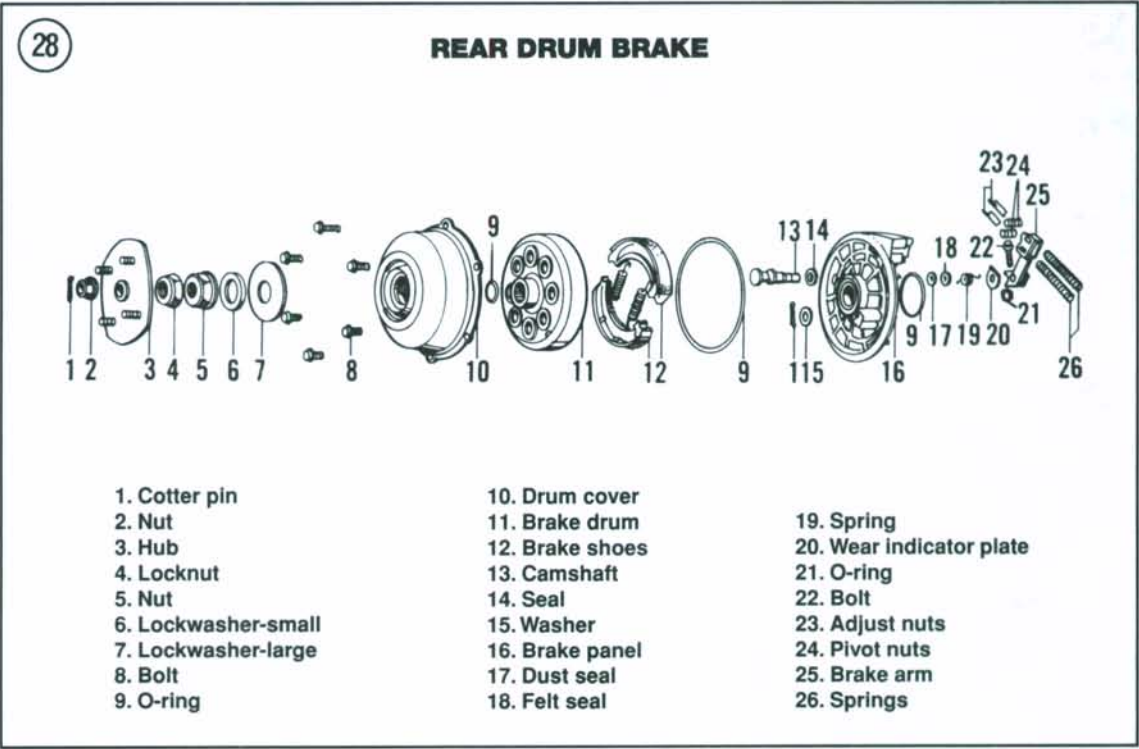
When working on the brake system, never blow off brake components or use compressed air. Do **not** inhale any airborne brake dust as it may contain asbestos, which can cause lung injury and cancer. As an added precaution, wear an approved filtering face mask and thoroughly wash your hands and forearms with warm water and soap after completing any brake work.

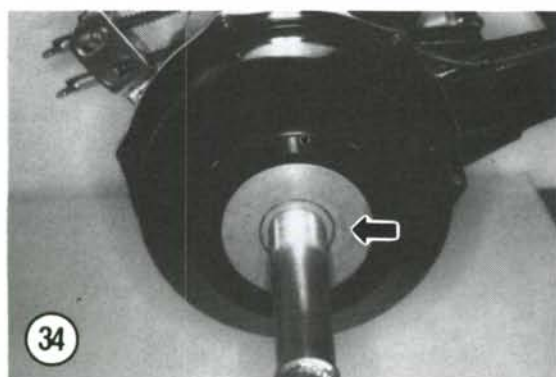
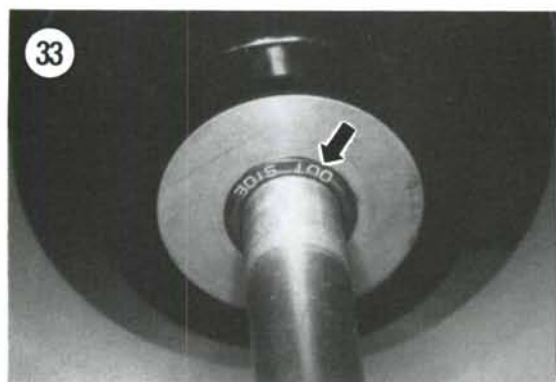
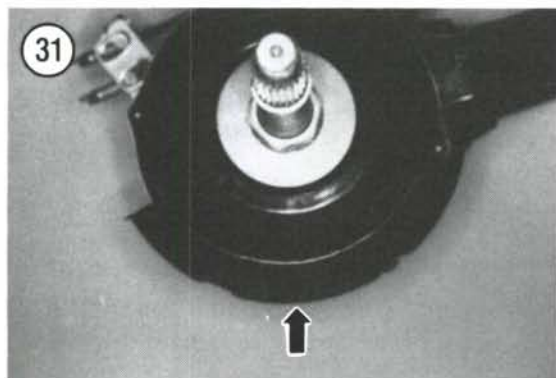
5. Remove the bolts securing the rear brake skid plate (Figure 31). Remove the skid plate.

6. Have an assistant hold onto the left-hand wheel to keep the rear axle from turning.

CAUTION

The outer axle locknut has had a locking agent applied during assembly and is tightened securely. It is difficult to remove even with the correct size tool and a lot of force. Do not apply heat to the area in order to try to loosen the locknut as this will ruin the heat-treated hardness of the axle.





NOTE

A pair of special flame cut 41 mm wrenches are available from a Honda dealer or some mail order houses. The Honda part Nos. are 07916-9580200 or 07916-958020A and 07916-9580400 or 07916-958010A.

7. On the right-hand side of the axle, hold onto the inner axle nut and loosen the outer axle locknut with the special tools (**Figure 32**). If necessary, tap on the end of the special tool with a soft-faced mallet to break the locknut loose.

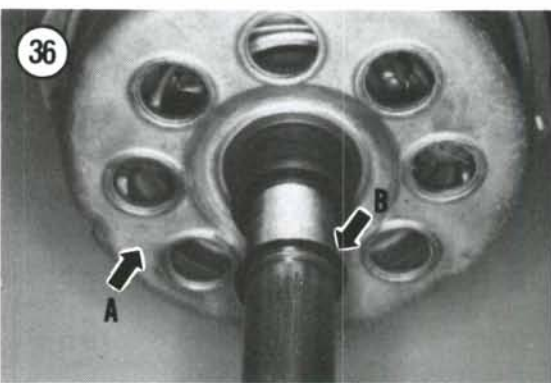
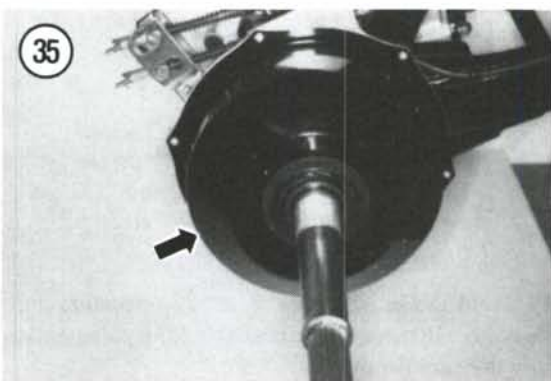
8. Completely unscrew the locknut and the nut from the axle threads and slide off both nuts.

9. Slide off the lockwasher (**Figure 33**) and large washer (**Figure 34**).

10. Remove the screws securing the brake drum cover (**Figure 35**) and slide off the cover.

11. Pull the brake drum (A, **Figure 36**) a short distance and then push it back to expose the O-ring. Remove the O-ring (B, **Figure 36**) and discard it. The O-ring cannot be reused.

12. Remove the brake drum (**Figure 37**) from the rear axle.



13. Using a Vernier caliper, measure the brake lining thickness. The linings should be replaced if worn to the service limit (distance from the metal backing plate) listed in **Table 1** or less.

14. Remove the cotter pin and washer (A, **Figure 38**) at the front pivot point of the brake shoes.

NOTE

If the brake shoes are going to be reinstalled, they must be installed in their original locations. Mark the brake shoes with a "U" (upper) and "L" (lower).

15. Remove the brake shoes (B, **Figure 38**) from the rear brake panel by pulling up on the center of each shoe.

16. Remove the return springs and separate the shoes.

17. Apply a light coat of molybdenum disulfide grease to the brake camshaft and pivot post. Avoid getting any grease on the brake plate where the linings come in contact with it.

18. Attach the return springs to the brake shoes.

NOTE

Place a clean shop rag on the linings to protect them from oil and grease during installation.

NOTE

If reinstalling old brake shoes, install them into their correct locations on the brake panel. Refer to the "U" and "L" marks made in the NOTE prior to Step 15.

19. Hold the brake shoes in a "V"-formation and snap them in place on the brake backing plate. Make sure they are firmly seated on it.

20. Install the washer and a new cotter pin. Bend the ends over completely.

NOTE

File off the leading edge of each shoe a little so that the brake will not grab when applied.

21. Make sure the brake drum O-ring seal (**Figure 39**) around the outer perimeter of the backing plate is in place and is in good condition. Replace if necessary.

22. Slide on the brake drum (A, **Figure 36**) and new O-ring seal (B, **Figure 36**).

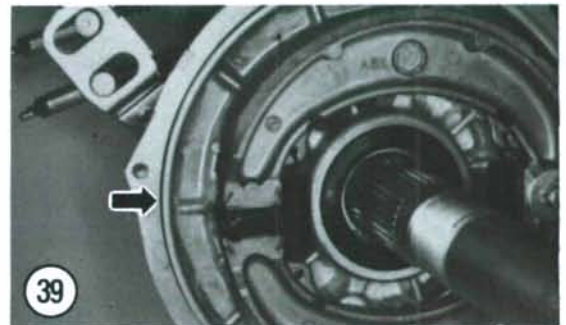
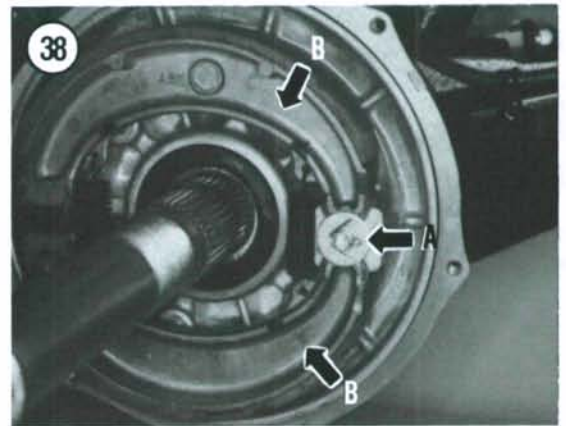
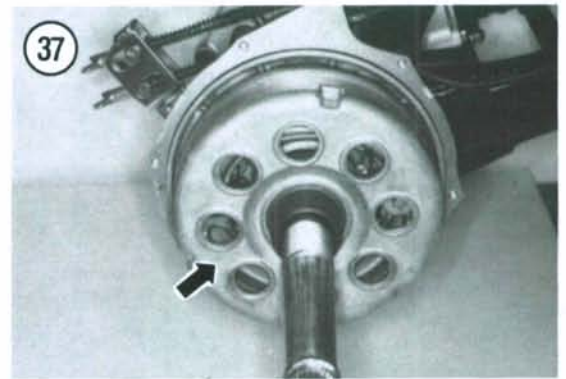
23. Carefully push the O-ring seal into the recess in the brake drum (**Figure 40**).

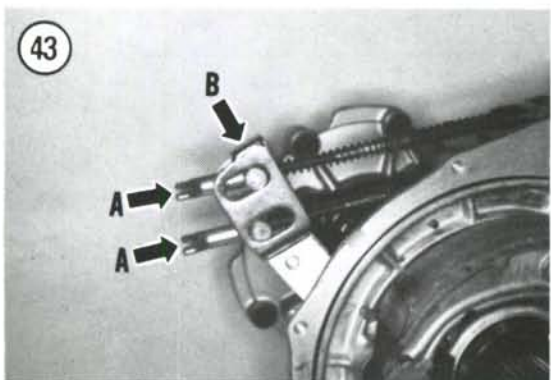
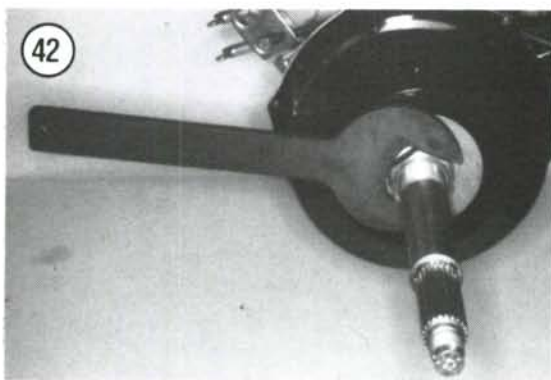
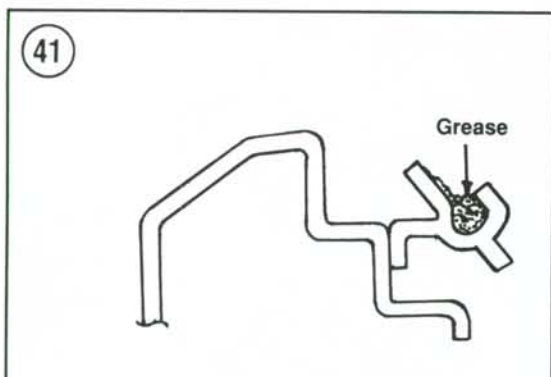
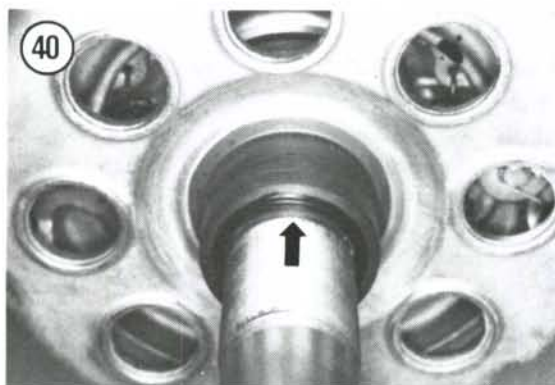
24. Apply multipurpose grease to the dust seal (**Figure 41**) in the brake cover and slide the cover into place (**Figure 35**).

25. Install the cover screws and tighten securely.

26. Install the large washer (**Figure 34**).

27. Position the lockwasher with the OUTSIDE mark facing out and install the lockwasher (**Figure 33**).





28. Install the inner nut on the right-hand side of the axle.

29. Have an assistant hold onto the left-hand wheel to keep the rear axle from turning.

30. Use the same tool set-up used for nut and locknut removal and tighten the inner nut (**Figure 42**) to the torque specification listed in **Table 2**.

31. Apply red Loctite (No. 271) to the threads of the outer locknut and install it on the rear axle.

32. Install one special wrench on the inner nut, tightened in Step 30, and hold this nut so that it will not be tightened any more.

CAUTION

Make sure the inner nut does not move while tightening the outer locknut in Step 33. If the inner nut is tightened further by mistake, it will place unwanted stress on the internal components of the final drive unit and cause damage.

33. Install the other wrench on the locknut (**Figure 32**) and tighten it to the torque specification listed in **Table 2**.

34. Install the rear brake skid plate and bolts. Tighten the bolts securely.

35. Apply multipurpose grease to the axle splines and hub splines.

36. Install the hub, washer and the hub nut.

37. Have an assistant apply the rear brake and tighten the hub nut to the torque specification listed in **Table 2**. If the cotter pin hole in the axle does not align with the castellations of the nut, tighten the nut further until hole alignment is correct. *Never* loosen the hub in order to achieve hole alignment.

38. Install a new cotter pin and bend the ends over completely. *Never* reuse an old cotter pin as the end may break and fall out.

39. Install the right-hand rear wheel as described in this chapter.

40. Adjust the rear brake as described in Chapter Three.

Brake Panel Removal/Installation

1. Remove the brake linings as described in this chapter.

2. Completely unscrew the adjusting nuts (A, **Figure 43**) from both brake cables.

3. Unhook both brake cables from the receptacle (B, **Figure 43**) on the brake panel.

4. Remove the pivot pin from each brake arm. To avoid misplacing these parts; install each pivot pin onto its respective brake cable and screw on the adjusting nuts.

5. Disconnect the breather hose (A, **Figure 44**) from the brake panel.

CAUTION

See the CAUTION at the beginning of this chapter relating to the use of self-locking nuts.

NOTE

*In **Figure 44** there are only 2 self-locking nuts visible out of a total of 4. Be sure to remove all 4 nuts.*

6. Remove the 4 self-locking nuts (B, **Figure 44**) securing the rear brake panel to the swing arm and remove the brake panel assembly. *Discard* the nuts, they cannot be reused.

CAUTION

See the CAUTION at the beginning of this chapter relating to the use of self-locking nuts.

7. Install a new O-ring (**Figure 45**) onto the backside of the rear brake panel. Apply a light coat of clean engine oil to the O-ring.

8. Install the rear brake panel onto the swing arm and install *new* self-locking nuts. Tighten the nuts securely.

9. Install each pivot pin onto its receptacle in the brake arm.

NOTE

*The brake pedal cable is installed in the bottom receptacle in the brake arm (**Figure 46**).*

10. Insert the brake cables into these pivot pins and screw on the adjusting nuts.

11. Install the brake linings as described in this chapter.

12. Adjust the rear brake as described in Chapter Three.

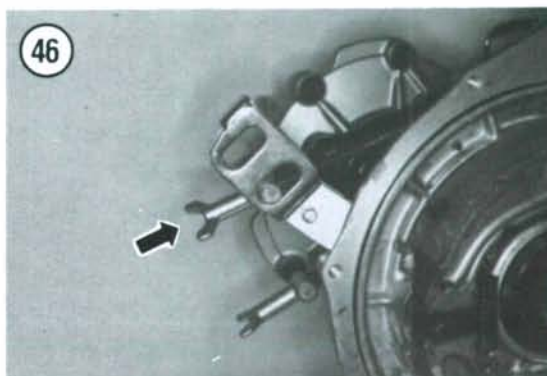
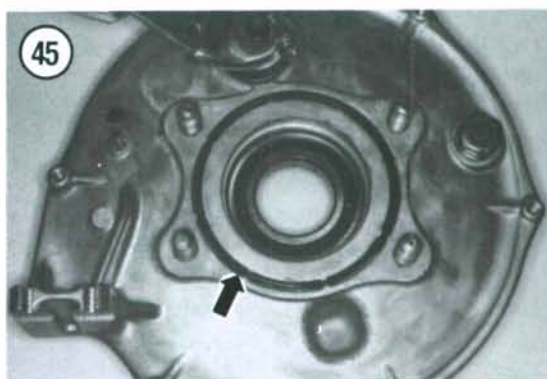
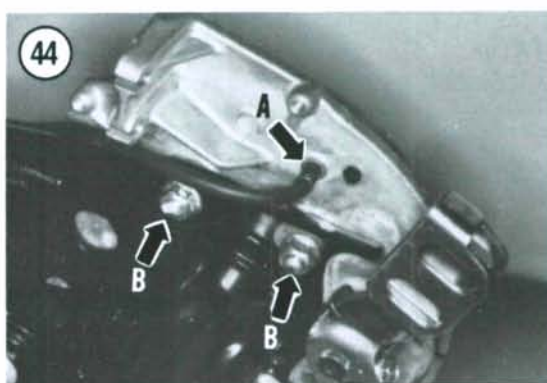
Brake Panel Disassembly/Assembly

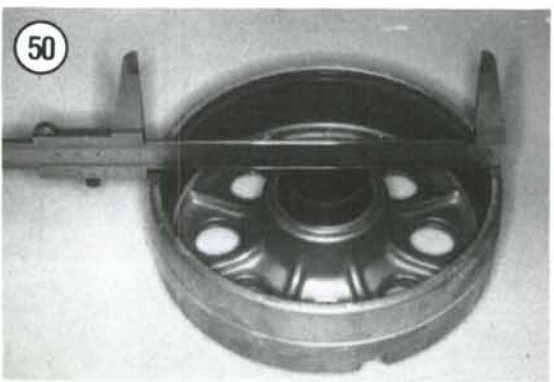
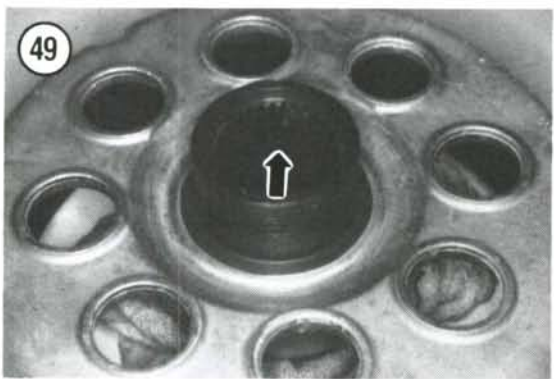
1. Unscrew the nut (A, **Figure 47**) and remove the bolt clamping the brake arm to the brake camshaft.

2. Remove the brake arm (B, **Figure 47**) from the brake camshaft.

3. Remove the wear indicator plate and the return spring from the brake camshaft.

4. Remove the brake camshaft from the brake panel.





5. Remove the felt seal and the dust seal from the recess in each side of the brake panel where the brake camshaft pivots.

6. Inspect the brake parts as described in this chapter.

7. Install a new dust seal into the recess on each side of the brake panel where the brake camshaft pivots. Apply a light coat of multipurpose grease to the dust seal after installation.

8. Install a new dust seal.

9. Install the brake camshaft into the brake panel.

10. Install the return spring and insert one leg of the spring into the hole in the brake panel.

11. Align the wide tooth of the wear indicator plate with the wide tooth on the camshaft and install the plate.

12. Align the punch marks on the brake arm and brake camshaft and install the brake arm onto the brake camshaft.

13. Install the clamping bolt and nut securing the brake arm to the brake camshaft. Tighten the bolt and nut securely.

Brake Panel and Drum Inspection

1. Thoroughly clean and dry all parts except the linings.

2. Check the contact surface of the drum (**Figure 48**) for scoring. If there are grooves deep enough to snag a fingernail, the drum should be reground and new shoes fitted. This type of wear can be avoided to a great extent if the brakes are disassembled and thoroughly cleaned after riding the vehicle in water, mud or deep sand.

NOTE

If oil or grease is on the drum surface, clean it off with a clean rag soaked in lacquer thinner—do not use any solvent that may leave an oil residue.

3. Inspect the splines (**Figure 49**) on the rear brake drum for wear or damage. The drum must be replaced if the splines are damaged. Also check the splines on the rear axle where the brake drum is positioned.

4. Use a Vernier caliper and check the inside diameter of the drum for out-of-round or excessive wear (**Figure 50**). Turn the drum if it will still be within the service limit dimension. Replace the drum if it is worn to the service limit listed in **Table 1** or greater.

5. If the drum is turned, the linings will have to be replaced and the new linings arced to the new drum contour.
6. Inspect the camshaft lobe and the pivot pin area of the shaft for wear and corrosion. Minor roughness can be removed with fine emery cloth.
7. Inspect the brake shoe return springs for wear. If they are stretched, they will not fully retract the brake shoes from the drum, resulting in a power-robbing drag on the drums and premature wear of the linings. Replace as necessary and always replace as a pair.
8. Inspect the dust seal (**Figure 51**) in the brake drum cover for wear or deterioration. Replace if necessary.

Rear Axle/Brake Panel Bearing Replacement

Removal

1. Remove the rear brake panel as described in this chapter. Be sure to remove the brake shoes (A, **Figure 52**) from the brake panel.
2. Turn the inner race of the rear axle/brake panel bearing (B, **Figure 52**) with your fingers. Make sure the bearing turns smoothly. Also check that the outer race of the bearing fits tightly in the brake panel.

NOTE

Some axial play is normal, but radial play should be negligible. The bearing should turn smoothly.

3. To remove the bearing and dust seal, perform the following:
 - a. Place the brake panel (with the inside surface or the brake shoe mounting surface down) on 2 pieces of soft wood.
 - b. Insert a soft aluminum or brass drift into the brake panel from the outside surface of the panel.
 - c. Tap the bearing (**Figure 53**) and dust seal out of the panel with a hammer working around the perimeter of the inner race.
 - d. Remove the bearing and the dust seal.
4. Discard the bearing and dust seal.

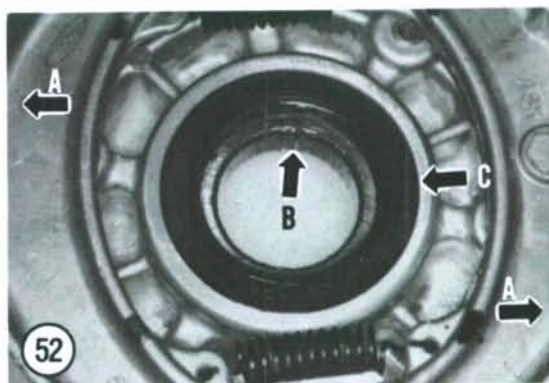
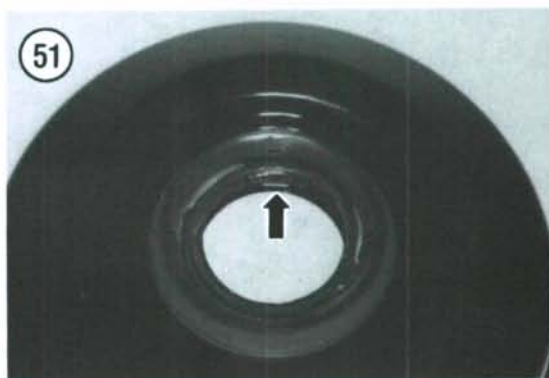
Installation

1. Pack the bearing with a good quality bearing grease. Work the grease in between the balls thoroughly. Turn the bearings by hand to make sure the grease is distributed evenly inside the bearings.

CAUTION

During installation, tap the bearing squarely into place and tap on the outer race only. Use a socket that matches the outer race diameter. Do not tap on the inner race or the bearings may be damaged. Be sure that the bearings are completely seated.

2. To install the bearing, perform the following:
 - a. Place the brake panel (with the inside surface or the brake shoe mounting surface up) on 2 pieces of soft wood.
 - b. Install the bearing so the sealed surface (black color) is facing up (**Figure 53**).
 - c. Tap the bearing into place in the panel until the top surface of the outer race is below the top surface of the raised boss surrounding the bearing by 9.8-10.3 mm (0.39-0.41 in.).



3. Install the dust seal as follows:

- Pack the new dust seal lip with grease and install it into the brake panel.
- Position the dust seal with the lip facing toward the bearing.
- Tap it into place until it completely seats against the bearing (C, **Figure 52**).

BRAKE CABLE REPLACEMENT

Brake cable adjustment should be checked periodically as the cables stretch with use and increases brake lever or pedal free play. Free play is the distance that the brake lever or pedal travels between the released position and the point when the brake shoes come in contact with the drum.

If the rear brake adjustment, as described in Chapter Three, can no longer be achieved, the cable(s) must be replaced.

Remember that the rear brake can be activated either by the cable operated hand lever on the left-hand side of the handlebar or by the cable actuated foot pedal on the right-hand side of the vehicle.

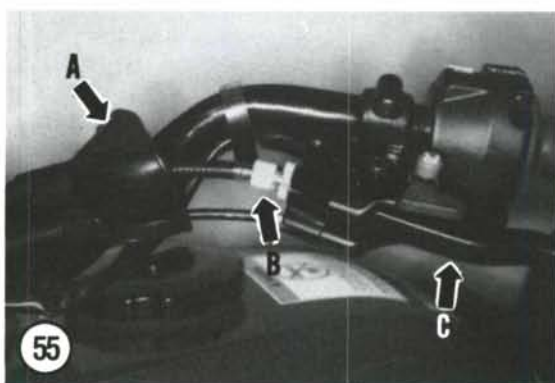
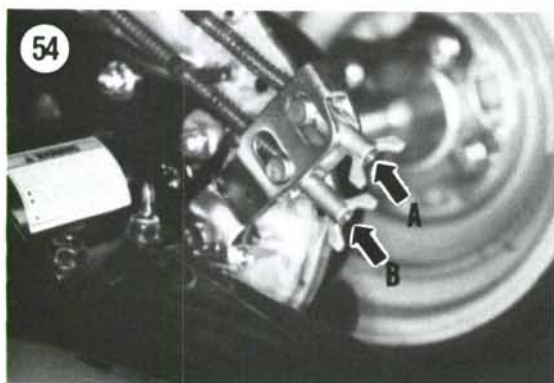
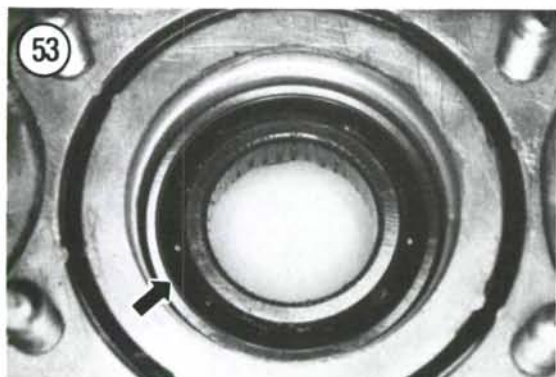
Rear Brake Cable Replacement (Left-hand Lever Cable)

- Place the vehicle on level ground and block the wheels so the vehicle will not roll in either direction.
- Remove the rear fender as described in Chapter Thirteen.
- Remove the fuel tank as described in Chapter Seven.
- At the brake assembly, completely unscrew the upper adjusting nut (A, **Figure 54**) from the end of the brake cable. Remove the cable and pivot pin from the brake arm. Reinstall the pivot pin and adjusting nut onto the brake cable to avoid misplacing them.
- At the left-hand lever, perform the following:
 - Slide back the rubber boot (A, **Figure 55**).
 - Loosen the locknut and adjust nut (B, **Figure 55**) on the brake cable.
 - Pull the brake lever (C, **Figure 55**) all the way to the grip, remove the cable nipple from the lever and remove the cable.

NOTE

The piece of string attached in the next step will be used to pull the new brake cable back through the frame so it will be routed in the exact same position.

- Tie a piece of heavy string or cord (approximately 1.8 m/6 ft. long) to the rear end of the brake cable. Wrap this end with masking or duct tape. Do not use an excessive amount of tape as it must be pulled through various frame loops during removal. Tie the other end of the string to the frame or rear axle.
- Loosen the metal bands or remove any plastic tie wraps securing the cable to the frame.

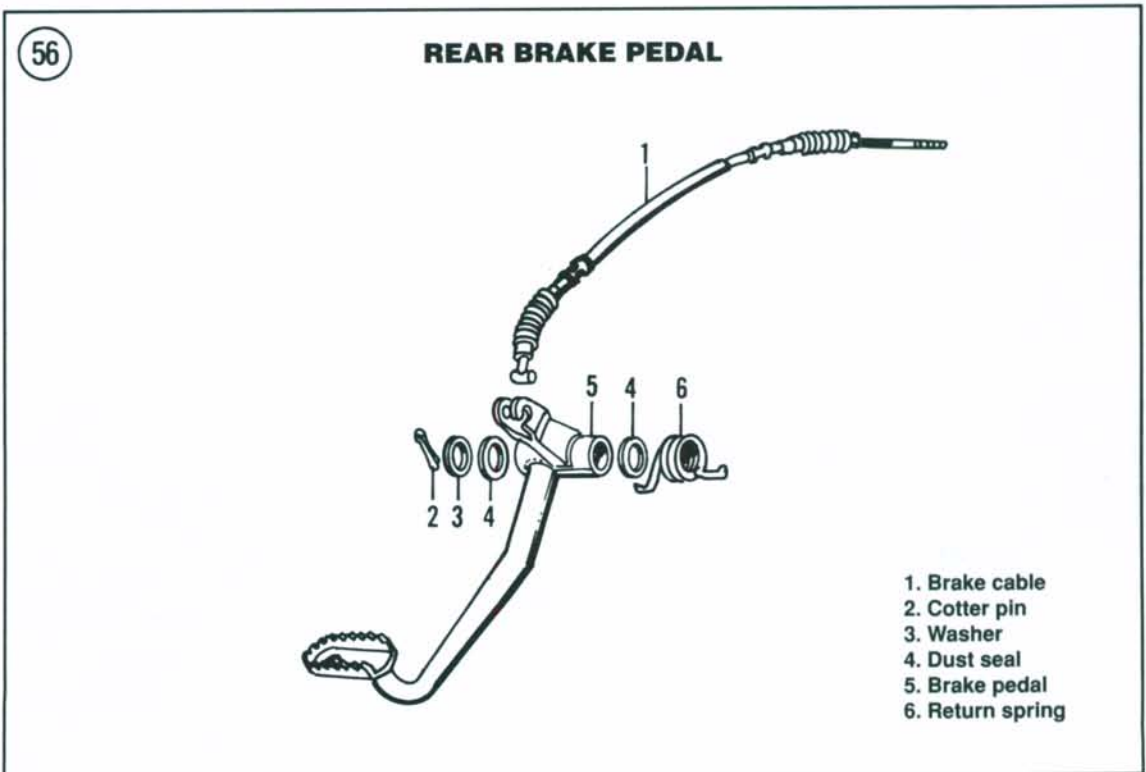


8. At the handlebar end of the cable, carefully pull the cable (and attached string) out through the opening in the handlebar cover. Make sure the attached string follows the same path of the cable through the frame.
9. Remove the tape and untie the string from the old cable.
10. Lubricate the new cable as described under *Control Cables* in Chapter Three.
11. Tie the string to the brake mechanism end of the new brake cable and wrap it with tape.
12. Carefully pull the string back through the frame routing the new cable through the same path as the old cable.
13. Remove the tape and untie the string from the cable and the frame or rear axle.
14. Insert the pivot pin into the brake arm and slide the return spring onto the cable. Attach the cable to the brake arm and brake lever.
15. Attach the metal bands or plastic tie wraps to the new cable in the exact same position on the frame.
16. Install the fuel tank and front fender.
17. Adjust the rear brake as described in Chapter Three.

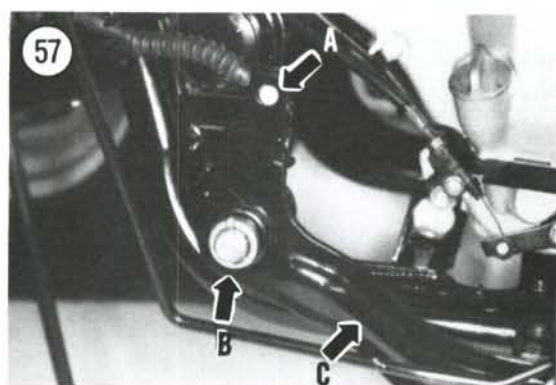
Rear Brake Pedal and Cable Removal/Installation

Refer to **Figure 56** for this procedure.

1. Place the vehicle on level ground and block the wheels so the vehicle will not roll in either direction.
2. Remove the rear fender as described in Chapter Thirteen.
3. To remove the brake cable, perform the following:
 - a. At the brake assembly, completely unscrew the lower adjusting nut (B, **Figure 54**) from the end of the brake cable.
 - b. Remove the cable and pivot pin from the brake arm.
 - c. Reinstall the pivot pin and adjusting nut onto the brake cable to avoid misplacing them.
 - d. Remove the cable from the receptacle (A, **Figure 57**) on the brake pedal.
 - e. Remove the brake cable from the frame.
4. To remove the brake pedal, perform the following:
 - a. At the brake assembly, completely unscrew the lower adjusting nut (B, **Figure 54**) from the end of the brake cable.



- b. Remove the cable and pivot pin from the brake arm. Reinstall the pivot pin and adjusting nut onto the brake cable to avoid misplacing them.
- c. Remove the cable from the receptacle (A, **Figure 57**) on the brake pedal.
- d. Remove the cotter pin and washer (B, **Figure 57**) securing the brake pedal to the pivot shaft on the frame. Discard the cotter pin.
- e. Using Vise-grip pliers, unhook the return spring from the brake pedal.



- f. Slide the brake pedal (C, **Figure 57**) off the pivot shaft.
5. Inspect the dust seals on each side of the brake pedal, replace if necessary.
 6. Install by reversing these removal steps while noting the following:
 - a. Apply grease to the pedal pivot shaft prior to installing the brake pedal.
 - b. Install a new cotter pin and bend the ends over completely.
 - c. Be sure that the return spring is properly attached.
 - d. Make sure the brake cable follows the same path as the old one.
 - e. Insert the pivot pin into the brake arm and slide the return spring onto the cable. Attach the cable to the brake arm and brake lever.
 - f. Adjust the rear brake as described in Chapter Three.

MASTER CYLINDER

Removal/Installation

1. Place the vehicle on level ground and set the parking brake.

CAUTION

Cover the fuel tank cover and front fender with a heavy cloth or plastic tarp to protect them from accidental brake fluid spills. Wash any brake fluid off any painted or plated surfaces immediately, as it will destroy the finish. Use soapy water and rinse completely.

2. Place a shop cloth under the union bolt and remove the union bolt (**Figure 58**) securing the upper flexible brake hose to the master cylinder and remove the brake hose. Tie the brake hose up and cover the end to prevent the entry of foreign matter.
3. Remove the clamping bolts and clamp (**Figure 59**) securing the master cylinder to the handlebar and remove the master cylinder.
4. Install by reversing these removal steps while noting the following:
 - a. Install the clamp with the UP arrow pointing up and tighten the upper clamping bolt first and then the lower bolt. Tighten the bolts securely.

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